

(130)**Materials Classification Using Multichannel Radiographs**

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This work aims to validate previous exploratory work done to characterize materials by matching their attenuation profiles using a multichannel radiograph given an initial energy spectrum. The experiment was performed in order to evaluate the effects of noise on the resulting attenuation profiles, which was ignored in simulation. Spectrum measurements have also been collected from various materials of interest. Additionally, a MATLAB optimization algorithm has been applied to these candidate spectrum measurements in order to extract an estimate of the attenuation profile. Being able to characterize materials through this nondestructive method has an extensive range of applications for national security.